

DECISION-MAKING AND THE RATIONAL ECONOMIC ACTOR: AN INTERDISCIPLINARY APPROACH

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In examining the area of economic decision-making, Lisa Keenan and Jason Somerville find that traditional economic methods fail to sufficiently explain many aspects of human behaviour. Factors like 'groupthink', overconfidence and – most importantly in this essay – the internal mechanisms of the brain can all help bridge this gap. It must be questioned whether the decision, the decision-making, or both, is the proper realm of the twenty-first century economist, particularly in light of the many 'irrational' decisions that people make. Neuroeconomics is one solution proposed for this dilemma.

Introduction

'Economics traditionally conceptualises a world populated by calculating, unemotional maximisers that have been dubbed *homo economicus*. In a sense, neo-classical economics has defined itself explicitly as 'anti-behavioural' by ignoring or ruling out all the behaviour studied by cognitive and social psychologists.'

(Smiths, 2006: 196).

This conception of human beings, described in the above quote, has enabled economists to formulate explanations for human behaviour without being forced to delve deep into the heart and the head. But can people's behaviour simply be attributed to their rationality at work? Do emotions, the social environment and brain-chemistry not also have a role to play?

What will be examined in this article are the various ways in which economic theory can be complemented and supplemented by alternative disciplines in order to improve its ability to explain reality and in particular, the area of economic decision-making.

Irrational behaviour as the norm

Economics as a discipline has clung to William Jevons' insight that:

'We can no more know nor measure gravity in its own nature than we can measure a feeling; but, just as we measure gravity by its effects in the motion of a pendulum, so we may estimate the equality or inequality of feelings by the decisions of the human mind.'

(Jevons, 1879: 12-13).

Jevons states that when confronted by the impossibility of an analysis of the factors behind decision-making, economics must take these factors as given and limit itself to the study of their effect (the decision). This statement circumscribes the sphere of economic analysis and it admits the limitations of this approach. But as the discipline progressed, this limitation was disregarded and a perception of man as *homo economicus*, that is, man as an entirely rational being became central to economic theory. However, as will be explored in this section, certain irrationalities (or what *economists* would see as being irrationalities) are evident in human behaviour, particularly in the realm of decision-making. Three levels have been identified at which these irrationalities can influence our behaviour: the external or societal level, the level of the individual and the internal level.

Firstly, it is important to note that no man is an island. Humans do not exist in a vacuum and social reality is an essential component of the decision-making process. Take for example, Asch's (1951) classic study on group conformity in which a group of individuals involved in the study ('confederates') colluded together in order to influence the responses of a lone participant. Participants were asked to compare the length of a series of lines. In the control group, where there was no pressure to conform; only one of the thirty-five participants gave the incorrect answer. In the experimental group, the confederates deliberately picked the wrong line in order to see if their choice would push the naïve participant into making a decision which he knew to be wrong. In successive tests, 75% of participants gave an incorrect answer to at least one question. Repeated testing has shown that the larger the group of confederates sharing an incorrect view, the more influence it has over the individual (Asch, 1956). Furthermore, the investigation into the

phenomenon known as ‘groupthink’ has shed light on the inherent irrationalities involved in group decision-making (Janis, 1972).

It is defined as:

‘...a mode of thinking in which the desire to reach unanimous agreement overrides the motivation to adopt proper rational decision-making procedures.’

(Hogg and Vaughan, 2008: 337).

In other words, the desire to involve everyone in the decision-making process makes compromise necessary and cumulates in less-favourable outcomes. These two social psychologists, along with many others have highlighted the ways in which external factors (in this case social relations) can influence and even determine the individual’s comportment.

Secondly, at the individual level, there are forces at play which come into direct conflict with the economist’s assumption of rationality. Over-confidence is, for example, one personality trait which can have a disastrous impact on a trader’s portfolio. John Allen Paulos (2003) describes his brief and ill-fated love-affair with WorldCom stocks.¹ This mathematician did not lose his shirt but had his sleeves shortened when he ignored the warning signs and continued to throw good money after bad, convinced that WorldCom still had a bright future ahead of it (Paulos, 2003). In addition, Gilovich, Vallone & Tversky (1985) found that having successfully scored a basket, basketball players became more confident that they could repeat this success despite the fact their abilities and the underlying probabilities were unchanged.

This same phenomenon can be explained with cognitive dissonance theory. Brehm (1956) asked a group of women to rate a sample of household appliances. They were then told that they could select one of two appliances for themselves. Following this, the women were asked to rate the same appliances again. Brehm found that the women systematically devalued the item they had forgone and increased their ratings of the one they had chosen. This is known as *post-decision dissonance*. Having chosen appliance A, a state of dissonance was invoked in that the opinion ‘I value some aspects of appliance B’ is inconsistent with the behaviour choosing A. The women rationalised their decision, as Paulos sought to rationalise his, in order to bring their behaviour (i.e. choosing A) in line with their cognitions.

A final level at which traditional economic theory fails to acknowledge other factors which directly conflict with the assumption of rationality is the internal one. It is important not to negate the role that internal mechanisms such as brain structure and complex biochemical interactions play in influencing behaviour. This idea is not alien to the general public. It is implicitly acknowledged when it is said, for example, that a drug addict is not ‘thinking straight’. But this insight is rarely applied in the analysis of decision-making. One discipline, however, which does seek to address this limitation, is the field of neuroeconomics. This relatively new discipline seeks to complement existing economic theory with powerful insights from psychology and neuroscience.

Neuroeconomics: an example of interdisciplinary co-operation

Neuroeconomics attempts to build on the achievements of behavioural economics by placing neurological determinants centre-stage. The field places particular emphasis in the role of emotions in the decision-making process. The first big break-through for this new discipline came from a scientific explanation of some of the flaws highlighted by behaviourists in the rational economic man assumption.

Behavioural economists often cite the Ultimatum Game in order to illustrate a situation in which we generally behave irrationally. This is a game of two players in which Player 1 proposes the division of a sum of money which is offered to them by the experimenter. Player 2 must accept the offer if either is to get a penny. According to classical economic theory, the rational utility-maximiser would accept any offer of money that comes his way because he would necessarily be better-off than he was before. However, in experiments, people demonstrated a reluctance to accept what they saw as an unfair split and almost always rejected low offers in order to punish the other player (Gneezy, Haruvy & Roth, 2003). Neuroeconomists have explained this through the use of fMRIs, or ‘active MRIs’, which recorded the blood-flow in various regions of the brain as participants answered various economics-related questions such as those involved in the Ultimatum Game. They found that the rejection of a low offer by the player was strongly correlated with high levels of activity in the dorsal striatum (O’Doherty, 2004). This area of the brain is associated with reward and punishment decisions. The studies suggest that there is more at play in the game than a simple concern with maximising utility. Similarly, tentative links have been established between the activity in the anterior insula and feelings of disgust such as those elicited by the proposal of an unfair offer. The prefrontal cortex ‘where people rationally weigh pros and

¹ WorldCom operated a scheme whereby day-to-day expenditure was classified as capital expenditure and pushed into the future. The result was healthier-looking profits in the short-run, which disguised an unhealthy reality. Share-value plunged as a result of a restatement of earnings and the firm was eventually forced to file for bankruptcy (Partnoy, 2004: 367-74).

cons' (Coy, 2005) is in essence the decision-making centre of the human brain and it is fed with the emotional impulses of the insula. The link between the two implies that emotions are one of several factors in the decision-making process.

When it comes to accepting or rejecting an unfair offer, neuroeconomists have been able to isolate serotonin as a specific neurotransmitter which influences the outcome (Crockett et al., 2008). They have also been able to link the neurotransmitter oxytocin to generous offers (Zak, Stanton & Ahmadi, 2007). While this analysis of the Ultimatum Game clearly illustrates that various different chemicals and regions of the brain are active when the problem of an apparently unfair split is considered, it is important to point out that these conclusions are tentative. A mere correlation is suggested by fMRI studies, which does not imply causation. Furthermore, we can consider the implications of a larger sum than the commonly used \$10. In this case, would the size of the sum or the proportion offered be a more important factor? (Varian, 2006). Would player 2 for instance reject the offer of \$1,000 if it were merely 1% of the total sum? While these criticisms are valid, the union of neuroscience and economics has demonstrated the value of interdisciplinary co-operation through its successful identification of some mechanisms underlying economic thought processes.

Beyond the fallacy of strict disciplinary independence

Some of the problems which crop up when simplified economic models are applied have been discussed in depth in order to explain more complex realities. The example of decision-making has been used in order to illustrate the ways in which economic theory can be complemented by co-operation with other disciplines, or improved by their insights. However, one critique has been advanced by Gul & Pesendorfer (2008) who argue that the mechanisms influencing decision-making are irrelevant. According to them, the decision is the only thing that matters and not the method by which it was formulated. The brain is thus treated as a black box and the study of what goes on inside it has little merit in economic analysis. This criticism is refuted for two reasons.

Firstly, economists have extended their influence far beyond the realm of the purely economic. The models of the discipline are now applied such diverse areas as '...human development, psychology, history, voting, law and even esoteric discoveries such as why you can't buy a decent second-hand car'. (Harford, 2006: 3). The proliferation of popular economic books which claim to offer insights into the spread of STDs, the reform of the American legal system (Landsburg, 2007), why drug-dealers live with their mothers (Levitt Dubner, 2006), and the quest for love and money (Frank, 2008) attest to this. It is this expansion of the realm of influence of economics and economists which must give pause for thought. Because economic models tend to focus on the inherent rationality of the individual, they ignore the social and internal factors which are at play and thus the insights which social sciences as sociology, psychology and neuroscience have gleaned from their analyses. The economist's study of those realms not immediately within the economic domain is thus incomplete without participation from those who possess useful information.

Secondly, and related to the first point, is that the information that economists act upon is incomplete if they refuse to take into account that half of human nature which differentiates us from mere rational information processors (computers). The spread of the economic model of behaviour culminates in the release of a highly negative view of human nature into the public domain. This view (that people are inherently selfish and rational) is wrong or, rather, not the whole story. And because economics informs policy, there is a real danger that such policies will have unintended and even disastrous effects. The attempted reform of the US Military by Alan Enthoven was one such policy. In essence, Enthoven tried to replace patriotism as a motivation for a career in the military with a system of incentives which would appeal to rational economic man. Enthoven failed miserably because the people he sought to liberate by creating a system which freed them from the irrationality of patriotism, in his words 'hated it'. (Curtis, 2007). He tried a similar system, under Thatcher with his reform of the NHS. This resulted in the prioritisation of targets over patients, and the development of devious strategies to post favourable figures to disguise a grim reality (ibid.).

Conclusion

It has not been the intention of this essay to discredit the field of economics, nor to provide an unproductive criticism of classical economic theory alone. Rather, some shortcomings in traditional economic thought have been identified as well as possible means of overcoming them. Economic analysis has provided much insight into human behaviour and still has an important role to play. However, if it is to retain its position as a respected discipline as it spreads outside the realm of the strictly economic, it must co-operate with other fields in order to continue to produce models which accord with reality.

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